

WHAT IS CLAIMED IS:

1. An integrated circuit, having N-input by M-output crosspoint switch with band translation, for use in an RF signal distribution system, the integrated circuit comprising:

an N input switch configured to route an input signal at any one of the N inputs to any one of the M outputs, with each of the N inputs having a high input impedance; and

M band translation devices, each of the M band translation devices connected to an output of the N input switch and configured to selectively frequency translate or pass through a signal from the output of the N input switch.

2. The integrated circuit of Claim 1, wherein the N input switch comprises N groups of M switches, with each group of M switches having inputs connected to a separate one of the N inputs, each group of M switches further having each of the M switch outputs connected to a separate one of the M band translation devices.

3. The integrated circuit of Claim 2, wherein each switch in the N groups of M switches comprises a voltage mode switch and wherein each of the band translation devices has a high impedance input.

4. The integrated circuit of Claim 2, wherein each switch in the N groups of M switches comprises a current mode switch and wherein each of the band translation devices has a low impedance input.

5. The integrated circuit of Claim 2, wherein each switch in the N groups of M switches comprises a transconductance device.

6. The integrated circuit of Claim 2, wherein each switch in the N groups of M switches is selectively enabled or disabled based on a control signal.

7. The integrated circuit of Claim 2, wherein each switch in the N groups of M switches provides greater than 30dB of signal isolation in a disabled state.

8. The integrated circuit of Claim 1, further comprising N low noise amplifiers (LNAs), with each LNA having an output connected to a separate input on the N input switch.

9. The integrated circuit of Claim 1, wherein the N input switch and the M band translation devices include differential signal inputs and differential signal outputs.

10. The integrated circuit of Claim 1, wherein each of the M band translation devices is configured to frequency translate a signal from a first RF frequency band to a second RF frequency band.

11. An integrated circuit having a crosspoint switch with band translation for use in an RF signal distribution system, the integrated circuit comprising:

- a first low noise amplifier (LNA) having a differential input and a low impedance differential output;

- a first transconductance device having a differential output and a high impedance differential input connected to the low impedance differential output of the first LNA;

- a second transconductance device having a differential output and a high impedance differential input connected to the low impedance differential output of the first LNA;

- a first band translation device having a differential output and a low impedance differential input connected to the differential output of the first transconductance device; and

- a second band translation device having a differential output and a low impedance differential input connected to the differential output of the second transconductance device.

12. The integrated circuit of Claim 11, wherein the first transconductance device comprises a controllable current source configured to selectively enable and disable the first transconductance device.

13. A method of routing signals in a reconfigurable signal distribution system, the method comprising:

- receiving a signal at a matched impedance input of a low noise amplifier (LNA) having a low output impedance;

selectively routing an output voltage of the LNA, using a first transconductance device having a high impedance input, as a current at an output of the first transconductance device;

selectively routing an output voltage of the LNA, using a second transconductance device having a high impedance input, as a current at an output of the second transconductance device; and

frequency translating a signal at the output of the first transconductance device from a first RF frequency band to a second RF frequency band.

14. A method of routing signals in a reconfigurable signal distribution system, the method comprising:

receiving an input signal at a matched impedance input of an input device;

generating an intermediate signal, based in part on the input signal, at the low impedance output of the input device;

providing the intermediate signal to a high impedance input of a current source;

selectively enabling the current source to provide an output current signal based in part on the intermediate signal;

receiving the output current signal at a low impedance input of a band translation device; and

frequency translating the output current signal from a first frequency band to a second frequency band.